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10/587,197	04/20/2007	Thomas J. Dougherty	054821-0514	7049

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EXAMINER

HUYNH, PHUONG

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,197	Applicant(s) DOUGHERTY ET AL.	
	Examiner PHUONG HUYNH	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Arai (US Patent Application Pub. No. 2003/0025506).

Regarding claim 1, Arai discloses a method for monitoring a battery installed in a vehicle comprising:

utilizing a system provided within the vehicle to determine that a test of the battery should be performed when a first condition is satisfied [see Arai:

Paragraphs [0010], [0152]]; wherein the first condition relates to at least one of the prior usage of the battery and the current state of the battery

electrically coupling at least one vehicle load to the battery [see Arai: Paragraph [0015], [0072], [0168]]; and

utilizing the system to analyze the response of the battery to the at least one vehicle load coupled to the battery [see Arai: Paragraphs [0051], [0072]];

whereby the system may be utilized to determine the state of health of the battery [see Arai: Paragraphs [0010], [0168]].

Regarding claim 2, Arai discloses wherein the system provided within the vehicle comprises a battery monitoring and management system [unit 1 includes computer 23] [see Arai: Paragraphs [0028], [0145], and [0146]].

Regarding claim 3, Arai discloses that the step of determining that a test of the battery should be performed comprises determining that the battery has been newly installed in the vehicle [see Arai: Paragraphs: [0007], and [0158]].

Regarding claim 4, Arai discloses determining that a test of the battery should be performed comprises receiving an input signal from an input device indicating that the battery is newly installed in the vehicle [see Arai: Paragraph [0072]].

Regarding claim 5, Arai discloses that the step of determining that a test of the battery should be performed comprises inferring that the battery is newly installed in the vehicle [see Arai: Paragraph [0150]].

Regarding claim 6, Arai discloses that the step of determining that a test of the battery should be performed comprises determining at least one vehicle system has lost power [see Arai: Paragraph [0153]].

Regarding claim 7, Arai discloses that the step inferring that the battery is newly installed in the vehicle further comprises testing the battery and comparing results of the testing with results of testing prior to the power lost to determine that a different battery has been installed [see Arai: Paragraphs [0155], [0160]].

Regarding claim 8, Arai discloses that the step of determining that a test of the battery should be performed comprises determining that a predetermined amount of time has passed [see Arai: Paragraph [0153]].

Regarding claim 9, Arai discloses that the predetermined amount of time comprises a predetermined amount of time since the battery was last used [see Arai: Paragraphs [0038], [0160]].

Regarding claim 10, Arai discloses that a test of the battery should be performed comprises determining that the battery has been used for a predetermined number of vehicle starts [see Arai: Paragraphs [0008], and [0072]].

Regarding claim 11, Arai discloses that the step of determining that a test of the battery should be performed comprises determining that the vehicle has experienced a predetermined number of weak starts [see Arai: Paragraphs [0073], [0091], [0153]].

Regarding claim 12, Arai discloses that the step of determining that a test of the battery should be performed comprises determining that the battery has been cycled a predetermined of times [see Arai: Paragraphs [0155] and [0165]].

Regarding claim 13, Arai discloses wherein the first condition comprises at least one of voltage level of the battery approaching a predetermined threshold, the current level of the battery approaching a predetermined threshold, and a slope of the voltage of the battery with time approaching a predetermined threshold [see Arai: Paragraphs [0158] and [0165]].

Regarding claim 14, Arai discloses that wherein the step of electrically coupling at least one vehicle load to the battery comprises sending a signal from the system to couple the at least one vehicle load to the battery [see Arai: Paragraph [0153]].

Regarding claim 15, Arai discloses that the step of electrically coupling at least one vehicle load to the battery comprises electrically coupling at least one relatively low current load and at least one relatively high current load to the battery [see Arai: Paragraphs [0053] and [0142]].

Regarding claim 16, Arai discloses that the step of electrically coupling at least one relatively low current load and at least one relatively high current load to the

battery comprises applying a first load to the battery, removing the first load from the battery, and applying a second load to the battery [see Arai: Paragraph [0072]].

Regarding claim 17, Arai discloses that wherein the step of electrically coupling at least one relatively low current load and at least one relatively high current load to the battery comprise concurrently applying both the low current load and the high current load to the battery [see Arai: Paragraphs [0054], [0072], [0142]].

Regarding claim 18, Arai discloses that wherein the relatively high current load is between approximately 3 and 20 amperes and the relatively low current load is between approximately 20 and 100 amperes [see Arai: Paragraphs [0073], [0080] and [0086]. Also as clearly seen in Figure 7 that high load/voltage from 0-20 amps and low load/voltage at 20-100 amps].

Regarding claim 19, Arai discloses that wherein the at least one vehicle load comprises at least one load applied by a device selected from the group consisting of a window defroster, an air conditioning system, a windshield wiper motor, a vehicle seat heater, a vehicle seat adjustment mechanism, and a vehicle entertainment system [see Arai: Paragraphs [0144] and [0156]].

Regarding claim 20, Arai discloses that wherein the at least one vehicle load comprises at least one load resulting from an extended engine crank [see Arai: Paragraph [0112]].

Regarding claim 21, Arai discloses that wherein the at least one vehicle load comprises at least one load provided by a sensor coupled to a vehicle communication system [see Arai: Paragraphs [0144]-[0146] and [0152]].

Regarding claim 22, Arai discloses that wherein the sensor coupled to a vehicle communication system comprises a current sensor [15] [see Arai: Paragraph [0149]].

Regarding claim 23, Arai discloses that wherein the step of analyzing the response of the battery to the at least one vehicle load coupled to the battery comprises analyzing the voltage response of the battery to the at least one vehicle load [see Arai: Paragraph [0072]].

Regarding claim 24, Arai discloses that wherein the step of analyzing the response of the battery to the at least one vehicle load coupled to the battery comprises analyzing the current response of the battery to the at least one vehicle load [see Arai: Paragraph [0072]].

Regarding claim 25, Arai discloses herein the step of analyzing the response of the battery to the at least one vehicle load coupled to the battery comprises analyzing the charge current acceptance of the battery when the engine of the vehicle is in operation [see Arai: Paragraph [098] and the alternator is providing sufficient voltage to charge the battery [see Arai: Paragraph [0008]].

Regarding claim 26, Arai discloses that wherein the step of analyzing the response of the battery to the at least one vehicle load coupled to the battery comprising comparing an input signal received from the battery to historical information for the battery [see Arai: Paragraph [0072], [0155]].

Regarding claim 27, Arai discloses that wherein the step of analyzing the response of the battery to the at least one vehicle load coupled to the battery comprises comparing an input signal received from the battery to information included in a lookup table [see Arai: Paragraph [0149] and [0155]].

Regarding claim 28, Arai discloses that providing an output signal if the battery is determined by the system to satisfy a second condition [see Arai: Paragraphs [0146] and [0158]].

Regarding claim 29, Arai discloses that the output signal comprises a signal to disconnect one or more loads from the battery [see Arai: Paragraphs [0035] and [0036]].

Regarding claim 30, Arai discloses that the output signal comprises at least one signal selected from the group consisting of a signal to instruct a voltage regulator to apply a *greater* charge to the batter and a signal to alter the idle speed of the signal [see Arai: Paragraph [0072]].

Regarding claims 31 and 34, Arai discloses that the output signal is at least one of a visual and an audible signal [see Arai: visual output is the graphs/outputs as seen in Figures 7 and 8].

Regarding claim 32, Arai discloses that the step of providing an output signal if the battery is determined by the system to satisfy a second condition comprises determining that the battery cannot support engine cranking for a predetermined amount of time [see Arai: Paragraph [0112]].

Regarding claim 33, Arai discloses that the step of providing an output signal if the battery is determined by the system to satisfy a second condition comprises determining that at least one of the current and the voltage of the battery declines

during application of the at least one vehicle load by a predetermined amount [see Paragraph [0057], [0072] and [0075]].

Regarding claim 35, Arai discloses a system for monitoring a vehicle battery comprising: a battery [13] installed within a vehicle; a system that may be selectively electrically coupled to the battery for carrying out the method, comprising:

utilizing a system provided within the vehicle to determine that a test of the battery should be performed when a first condition is satisfied [see Arai: Paragraphs [0010], [0152]];

electrically coupling at least one vehicle load to the battery [see Arai: Paragraph [0015]]; and

utilizing the system provided within the vehicle to determine that a test of battery should be performed when a first condition is satisfied, wherein the first condition relates to at least one of the prior usage of the battery and the current state of the battery; [see Arai: Paragraphs [0051], [0072]];

electrically coupling at least one vehicle load to the battery[see Arai: Paragraph [0072], lines 1, 1-13; [0147]], also see Figure 5];

and utilizing the system to analyze the response of the battery to the at least one vehicle load coupled to the battery [see Arai: Paragraphs [0051], [0072]; whereby the system may be utilized to determine the state of health of the battery [see Arai: Paragraphs [0010], [0168]].

and a vehicle electrical system comprising a plurality of loads [see Arai: Paragraph [0072], lines 1, 1-13; [0147]] that

Regarding claim 36, Arai discloses that wherein the vehicle electrical system comprises a plurality of relatively high current loads and a plurality of low current loads [see Arai: Paragraphs [0073], [0080] and [0086] and [0142]. Also as clearly seen in Figure 7 that high load/voltage from 0-20 amps and low load/voltage at 20-100 amps].

Regarding claim 37, Arai discloses that wherein the plurality of loads comprises at least one vehicle load selected from the group consisting of a window defroster, an air conditioning system, a windshield wiper motor, a vehicle seat heater, a vehicle seat adjustment mechanism, a vehicle entertainment system, and a sensor [sensor 15 or 17] coupled to a vehicle communication system [see Arai: Paragraph [0146] and [0147]].

Response to Arguments

3. Applicant's arguments filed 05/07/2008 have been fully considered but they are not persuasive.
4. Regarding amended claims 1 and 35, Applicant argues that Arai does not disclose the amended limitation, "wherein the first condition relates to at least one of the

prior usage of the battery and the current state of the battery” [see Applicant’s Remarks: Page 9-10].

5. Accordingly, Arai discloses the amended limitation, wherein the first condition relates to at least one of the prior usage of the battery and the current state of the battery” [see Arai: Paragraph [0072] for example

“A vehicle has a battery for supplying an electric power to loads mounted on the vehicle. The battery has generally a normal output voltage of 12V or 42V. The vehicle may be an EV (electric vehicle) or a HEV (hybrid electrical vehicle). Such vehicles have an electric load requiring a larger current like a stator motor, a motor generator, or a vehicle driving motor. For example, after a larger current electric load like a starter motor is turned on, a rush current flows through the electric load at an initial step of the starting. Then, the current flowing through the electric load becomes constant according to a capacity of the electric load. When the starter motor is a DC motor, a rush current flowing through a field coil of the motor is illustrated in FIG. 6. The rush current increases sharply up to a peak, e.g. of 500 A (ampere) during a short period, e.g. of 3 milliseconds just after the starting of the electric load. The peak value is several times a normal constant current. The rush current decreases from the peak to the constant value during a comparatively short period, e.g. of 150 milliseconds, which is a discharge current supplied from a battery. In a state where a rush current is flowing through the electric load, a discharge current and a corresponding voltage between a pair of terminals of the battery are measured. Thereby, a correlation between the discharge current (I) and the terminal voltage (V) of the battery is obtained, which shows the terminal voltage varying with the discharge current in a wide region of the discharge current.”;

and also see the above rejection in this Office Action].

Conclusion

6.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUONG HUYNH whose telephone number is (571)272-2718. The examiner can normally be reached on M-F: 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on 571-272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael P. Nghiem/
Primary Examiner, GAU 2863

Phuong Huynh
Examiner
Art Unit 2857

/Phuong Huynh/
Examiner, Art Unit 2857
August 28, 2008